DOCUMENT RESUME

ED 288 314 EC 200 788

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TITLE Children with Seizure Disorders and Comparison Groups (Children with Diabetes Mellitus and Nonchronically Ill Children).
PUB DATE Apr 87
NOTE 14p.; Paper presented at the Biennial Meetings of the Society for Research and Development in Children (Baltimore, MD, April 23-26, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Attention; *Cognitive Processes; Comparative Analysis; Competence; *Diabetes; Elementary Secondary Education; Family Environment; *Intelligence; Memory; *Seizures; Self Concept
IDENTIFIERS *Child Health

ABSTRACT

Twenty-four children (aged 7-16 years) with seizure disorders (SD) were compared to 30 children with diabetes mellitus (DB) and 30 children with no chronic illness. Using a variety of assessment devices, the children were compared on intelligence, academic achievement, attention, memory, perceived competence, and parents' perceptions of child and family functioning. The seizure disorder children scored lower than the other groups on intelligence, reading comprehension, mathematics, cognitive and social competence, and had more school problems (e.g., problems making friends and need for remedial education). On the attention task, SD children performed less well than the others on recall of task-relevant information, while DB children scored higher than the other groups on incidental recall. On the memory task, both the SD and DB children had less effective recall than the control group. Parents' reports showed significant differences on family environment, though all scores were within the normal range. Children's reports of self-esteem and competencies were also all within the normal ranges. (JDD)

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CHILDREN WITH SEIZURE DISORDERS AND COMPARISON GROUPS

(Children with Diabetes Mellitus and Nonchronically Ill Children)

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Presented at the Biennial Meetings of the Society for Research and Development in Children, April, 1987, Baltimore, Maryland.

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ABSTRACT

Children with seizure disorders often function in the low average range on intellectual measures, but the variability across children is wide and covers the whole range. Performance on information processing (attention and memory) has been found to be lower than that of children without seizure conditions. In this study, children with seizure disorders between the ages of 8 and 16 years were compared to children with either diabetes mellitus or no chronic illness condition on the following: intelligence, academic achievement, attention and memory, perceived competence, and parents' perceptions of child and family functioning.

Children with seizure disorders performed below children with diabetes mellitus or no illness on intellectual measures. Academic achievement was also impaired for the children with seizure disorders. For the information-processing tasks, the children with chronic illnesses performed less well than the nonchronically ill group. Serial-recall performance indicated that rehearsal strategies to facilitate recall were not typically used by these children. The children's reports of self-esteem and competencies were all within the normal ranges.

INTRODUCTION

While most children with chronic physical illnesses function within the normal range on tests of intelligence and cognitive functions, differences in performance across illnesses have sometimes been found. Seizure disorders in children are often associated with lower than average performance in intellective-cognitive functioning as well as in academic achievement, while diabetes mellitus typically is associated with either no or mild effects on performance in these areas. Perceived competence and family functioning are reported to be affected by the presence of chronic illness as well. In this study, the performances of children with seizure disorders (SD), or diabetes mellitus (DB), and a matched sample of children with no illnesses (NIC), were compared on the following:

Intellectual Ability
Academic Achievement
Information Processing
Social and
Medical Information

METHODS

SUBJECTS

	SD	DBC	NIC
NUMBER	24	30	30
SEX			
MALE	11	13	14
FEMALE	13	17	16
AGE (in years)			
MEAN	11.1	12.6	12.6
S.D.	2.3	2.7	2.7
RANGE	7.2-16.8	8.0-16.3	8.1-16.6

ASSESSMENTS

INTELLIGENCE

Wechsler Intelligence Scale for Children-(revised)

- *Vocabulary
- *Information
- *Comprehension
- *Digit Span
- *Block Design
- *Total of Subscales

ACHIEVEMENT

Peabody Individual Achievement Test

- *Reading Comprehension
- *Mathematics

INFORMATION PROCESSING

Hagen's Central-Incidental Attention Task

- *Central: Recalls task-relevant information
- *Incidental: Recalls task-irrelevant information

Pause-Time Memory Task

- *Accuracy: Percent recalled

CHILD AND FAMILY CHARACTERISTICS

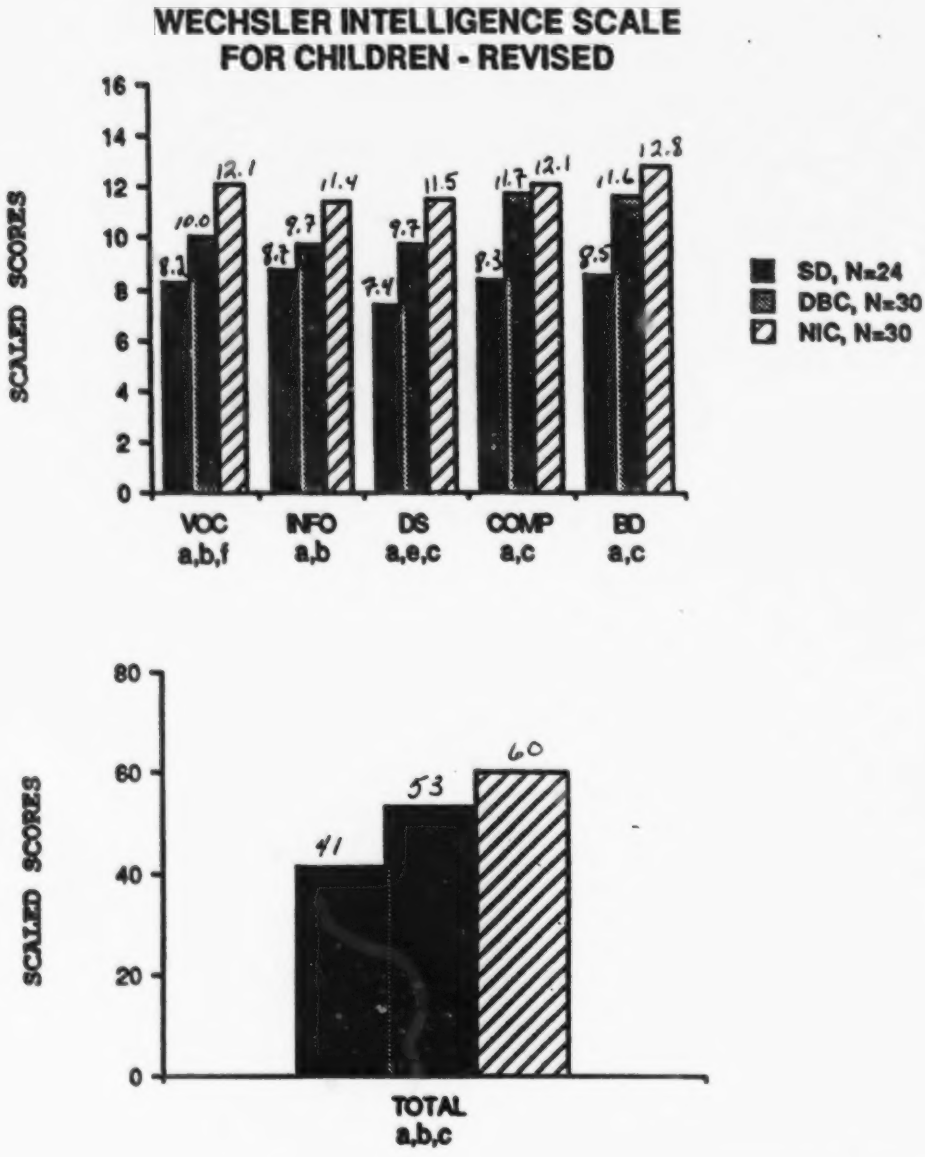
Harter's Perceived Self-Competence Scale

- *Physical
- *Cognitive
- *Social
- *General Self-Esteem

- *Moos Family Environment Scale
- *Developmental/Medical Background
- *School History and Current Performance

NOTE: In all analyses, SES is used as a covariate, as is age, where appropriate

INTELLECTUAL ABILITY

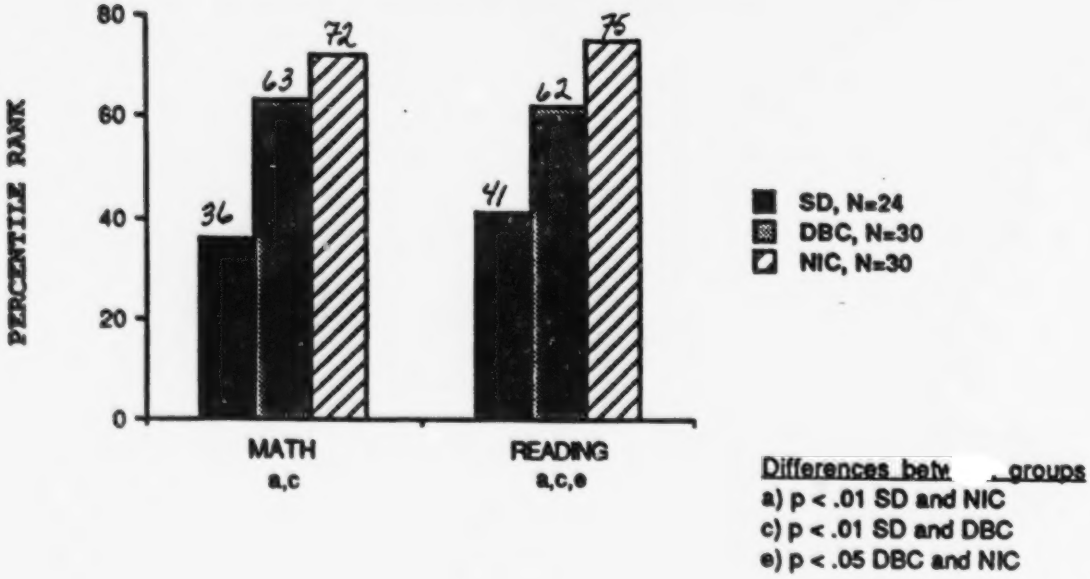


Differences between groups

a) $p < .01$ SD and NIC
b) $p < .01$ DBC and NIC
c) $p < .01$ SD and DBC
e) $p < .05$ DBC and NIC
f) $p < .05$ SD and DBC

ACADEMIC PERFORMANCE

PEABODY INDIVIDUAL ACHIEVEMENT TEST



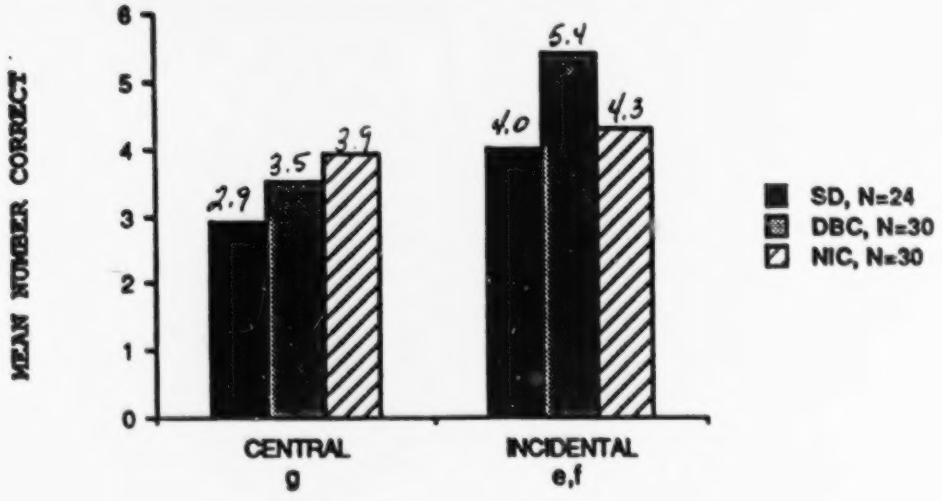
SCHOOL HISTORY AS REPORTED BY PARENTS

% responding yes

	SD	DBC	NIC
EVER REPEATED GRADE	17	13	00
REMEDIAL EDUCATIONAL SERVICES THIS YEAR	50	27	7
REMEDIAL EDUCATIONAL SERVICES ANY YEAR	54	40	17
ABSENT > TWICE LAST MONTH	8	17	7
DOESN'T TRY TO DO BEST IN SCHOOL	42	30	55
PROBLEMS WITH TEACHERS	4	7	3
PROBLEMS MAKING FRIENDS	38	17	13

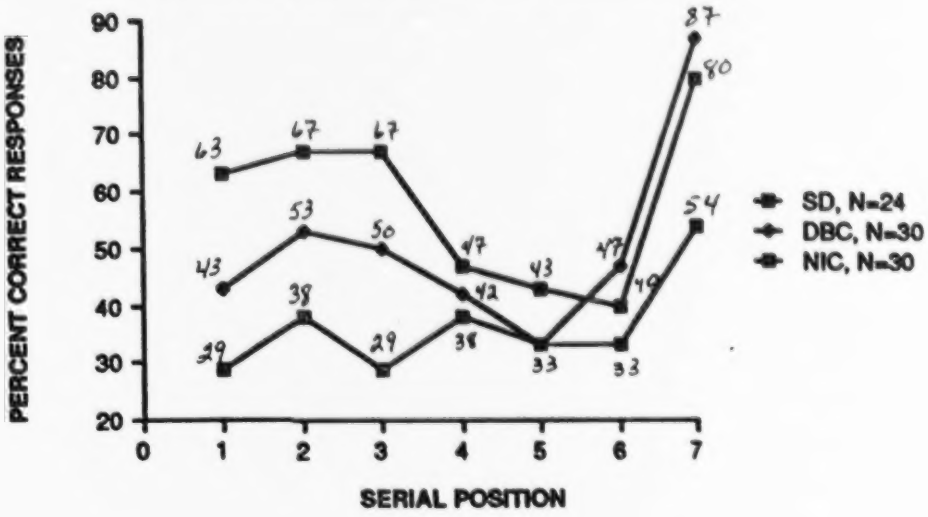
INFORMATION PROCESSING

CENTRAL AND INCIDENTAL ATTENTION TASK

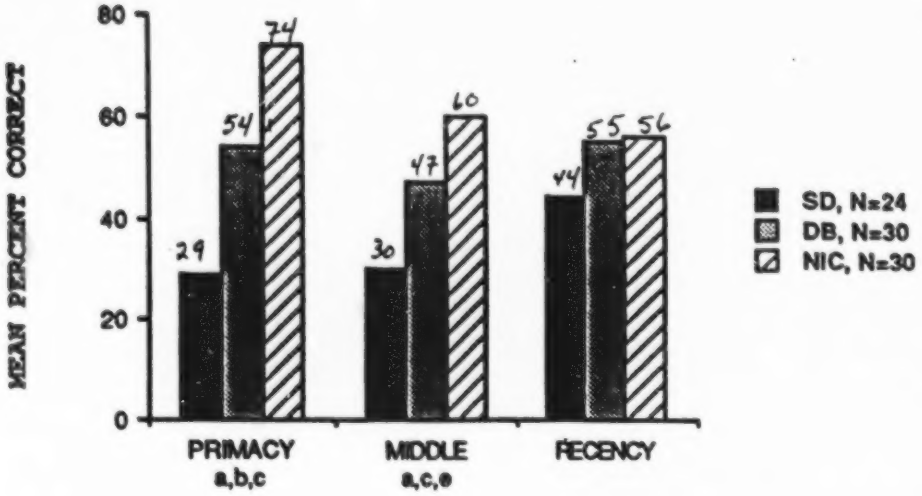


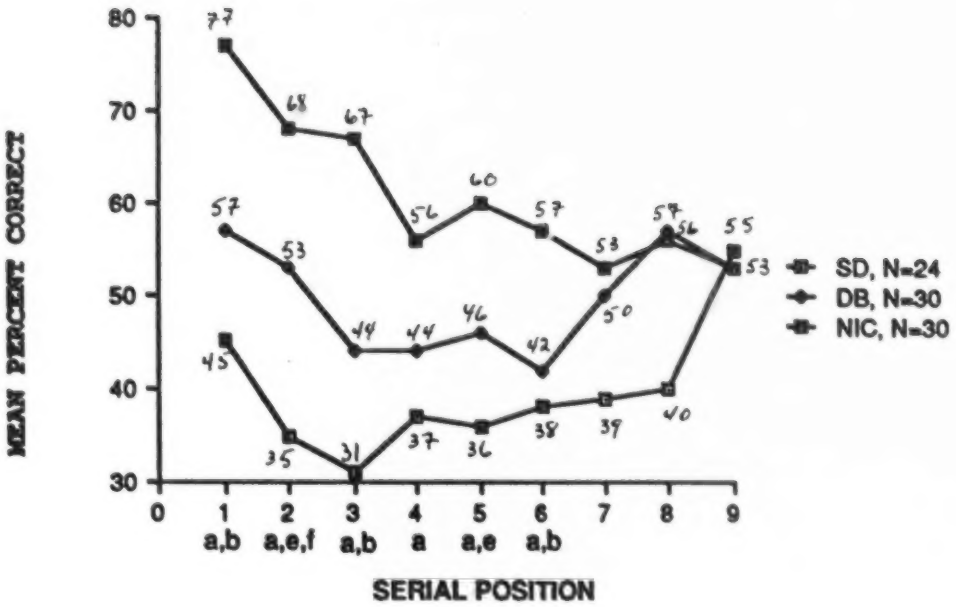
Differences between groups
e) $p < .05$ DBC and NIC
f) $p < .05$ SD and DBC
g) $p < .05$ SD and NIC

CENTRAL RECALL PERFORMANCE



PAUSE TIME MEMORY TASK

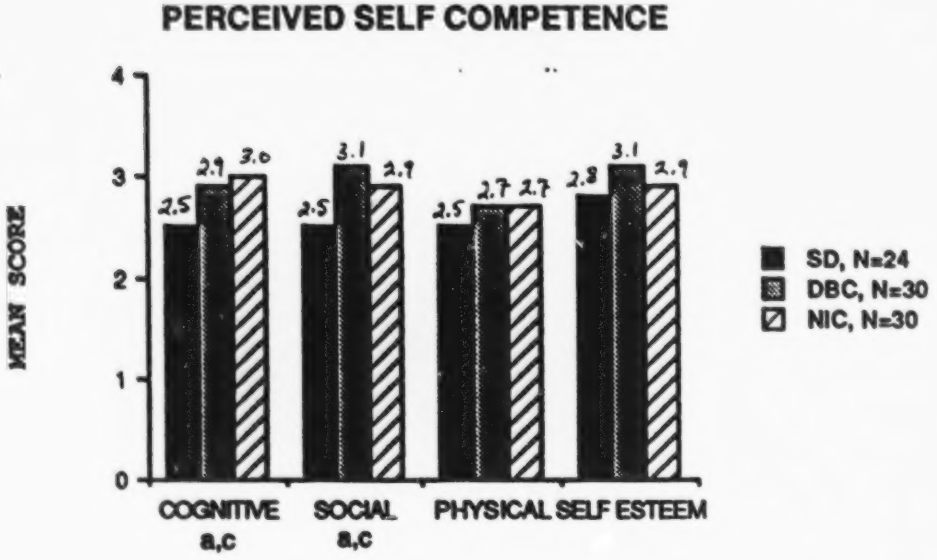




Differences between groups

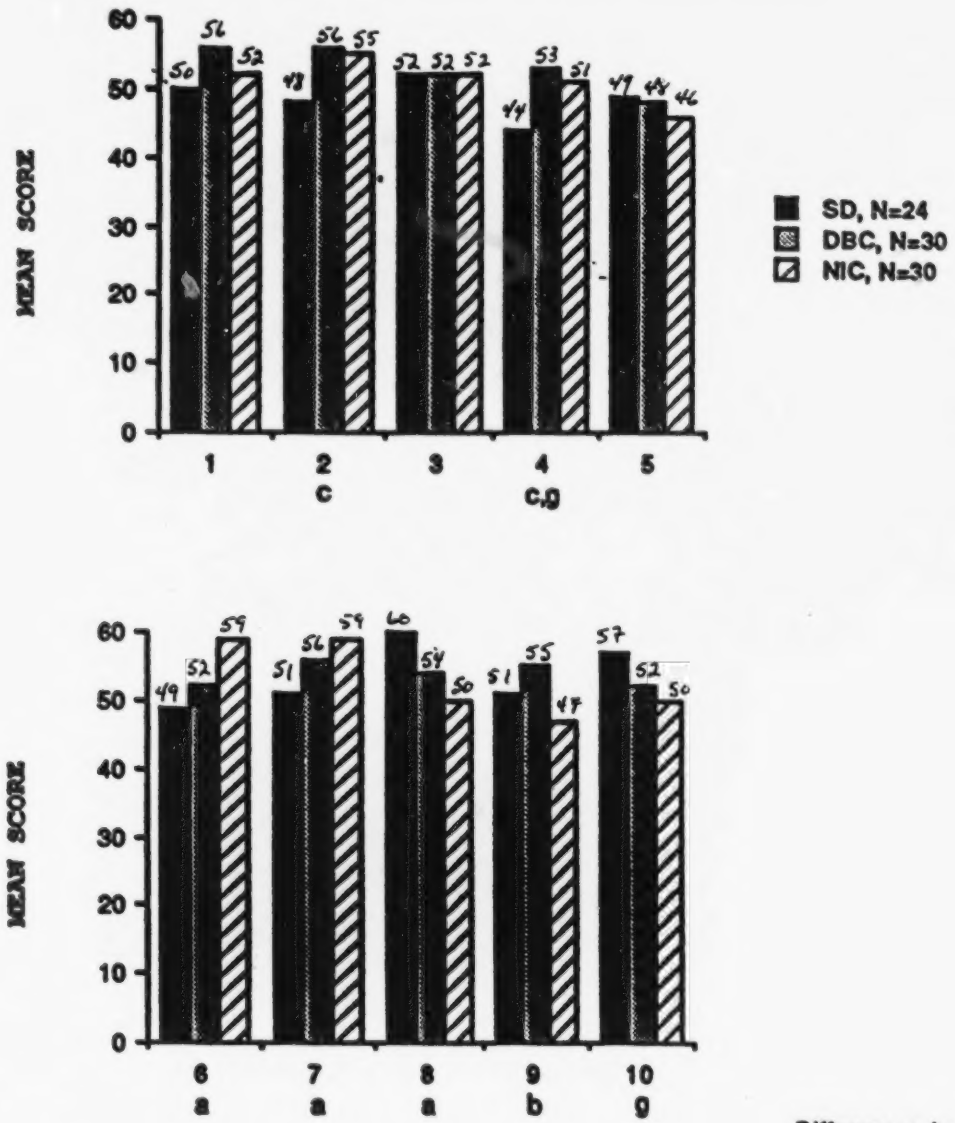
a) $p < .01$ SD and NIC
b) $p < .01$ DBC and NIC
c) $p < .01$ SD and DBC
d) $p < .05$ SD and NIC
e) $p < .05$ DBC and NIC
f) $p < .05$ SD and DBC

SOCIAL INFORMATION



Differences between groups
a) $p < .01$ SD and NIC
c) $p < .01$ SD and DBC

FAMILY ENVIRONMENT SCALE - PARENT REPORT



Differences between groups
a) $p < .01$ SD and NIC
b) $p < .01$ DB and NIC
c) $p < .01$ SD and DB
g) $p < .05$ SD and NIC

SUBTEST NAMES

1 = COHESION
2 = EXPRESSIVENESS
3 = CONFLICT
4 = INDEPENDENCE (ACHIEVEMENT ORIENTATION)
6 = INTELLECTUAL/CULTURAL ORIENTATION
7 = ACTIVE/RECREATIONAL ORIENTATION
8 = MORAL/RELIGIOUS EMPHASIS
9 = ORGANIZATION (& CONTROL)

MEDICAL INFORMATION AS REPORTED BY PARENTS

	SD	DBC	NIC
AGE AT DIAGNOSIS			
MEAN	6.8	5.7	--
S.D	3.7	4.2	--
RANGE	1.6-13.8	.8-13.5	--
DURATION OF ILLNESS			
MEAN	4.5	6.9	--
S.D.	3.1	4.3	--
RANGE	.11-11.5	.8-14.6	--
CONTROL OF ILLNESS			
VERY GOOD	79%	43%	--
AVERAGE	21	43	--
POOR	00	10	--
ACUTE REACTION TO THE CHRONIC ILLNESS			
OFTEN	38%	10%	--
SELDOM	13	77	--
< ONCE/YEAR	46	13	--
LOSS OF CONSCIOUSNESS	63%	37%	17%
OTHER MEDICAL PROBLEMS	42%	30%	37%

CONCLUSIONS

INTELLECTUAL AND ACADEMIC PERFORMANCE

*Differences in performance on intelligence scales were found; children with SD scored lower than children with DB or NIC.

*Achievement in reading comprehension and in mathematics was lower for children with SD than for children with DB or NIC.

*While DB children miss more school than the SD children they have less school problems than the SD children (parent report).

INFORMATION PROCESSING

*For the Central-Incidental task, children with SD scored lower on central recall than the children with DB or NIC. For the incidental measure, children with DB scored higher than either of the other groups.

*For the Pause-Time Task, recall strategies of children with a chronic illness were less systematic and less effective in terms of recall than those in the NIC group. Differences in recall occurred between the two groups with illnesses as well. The performance of the control group revealed an optimal active-passive rehearsal strategy for encoding information that resulted in an overall higher level of recall than found for either group with chronic illness.

CHILD AND FAMILY CHARACTERISTICS

*All children scored within the average range on the perceived competence scale. The seizure disorder children, however scored lower than the diabetic children and the NIC on the cognitive and social subscales.

*Significant differences were found between the various parents' reports on the Family Environment Subscales, however their scores were all within the normal range. The only parent score approaching the extreme was on the Moral Religious Emphases subscale by SD children's parents.